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Hongjie Cao

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AKZO NOBEL INC.

LEGAL & IP

120 WHITE PLAINS ROAD, SUITE 300

TARRYTOWN, NY 10591

EXAMINER

CHANNAVAJJALA, LAKSHMI SARADA

ART UNIT

PAPER NUMBER

1611

NOTIFICATION DATE

DELIVERY MODE

02/22/2010

ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

IPANIPATENT@AKZONOBEL.COM

Office Action Summary	Application No. 10/723,341	Applicant(s) CAO ET AL.	
	Examiner Lakshmi S. Channavajjala	Art Unit 1611	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 16 November 2009.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1,2,8-10 and 27-29 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☐ Claim(s) 1, 2, 8-10 and 27-29 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Receipt of amendment and response dated 11-16-09 is acknowledged.

Claims 1, 2, 8-10 and 27-29 are pending.

It is herewith clarified that claim 26 has been canceled by the amendment of 5-8-09 and therefore, even though applicants state in their remarks dated 11-16-09 that claims 26 is pending; only claims 1, 2, 8-10 and 27-29 are pending.

Claim Rejections - 35 USC § 112

Claims 1, 2, 8-10 and 27-29 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

1. Instant claim 1 has been amended to recite "a personal care composition comprising a water-proofing effective amount of a water dispersible acrylate copolymer emulsion having essentially no hydrophobic monomers having an alkyl group of greater than or equal to C8." Further, the dependent claim 29 recites that the acrylate copolymer is in the form of a 45% polymer-in-water emulsion. A review of the instant specification does not reveal that instant acrylate polymer is in the form of an emulsion and instead, the final composition after the addition of the instant polymer may be in the form of emulsion. Instant specification teaches adding the acrylate copolymer to the aqueous phase prior to emulsification, during emulsification or heating stage, cooling stage or after cool down (page 4, L 3-10), but there is no evidence in the instant

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disclosure that the instant polymer by itself constitutes an emulsion. While instant example teaches the preparation of an emulsion with Dermacryl AQF (45% active), there is no description of adding the claimed polymer as an emulsion to a composition. Hence, this constitutes a rejection under written description requirement.

Response to Arguments

2. Applicant's arguments filed 11-16-09 have been fully considered and the previous rejection under the above statute has been withdrawn. However, the above rejection is new and is based on the amendment of 11-16-09 that requires polymer emulsion.

Claim Rejections - 35 USC § 103

3. Claims 1, 2, 8-10 and 27-29 are rejected under 35 U.S.C. 103(a) as being unpatentable over US 4085264 to Seib et al (Seib) in view of US 4,172,122 to Kubik et al (Kubik).

4. Seib teaches copolymers of acrylic acid, methacrylic acid and methacrylic acid esters and their use in hair care composition. The acrylate polymers of the copolymer are described as follows:

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ing effect, can be combed out without difficulty.

We have found, surprisingly, that this object is achieved by the process according to the invention, ie. in a process for the manufacture of copolymers by copolymerizing acrylic acid or methacrylic acid with 4 esters of acrylic acid and methacrylic acid in the presence of free radical-forming initiators, wherein the improvement comprises copolymerizing — based on total weight of monomers

(a) from 45 to 80% of methyl methacrylate, 5

(b) from 10 to 30% of one or more alkyl acrylates where alkyl is of 3 to 12 carbon atoms and

(c) from 10 to 25% of acrylic acid and/or methacrylic acid at from 140° to 300° C and at from 2 to 50 bars.

In particular, Seib teaches butylacrylate as one of the copolymer (see col. 2, L 1) and the various amounts of the individual polymers that make up the copolymers are described in examples 1-3 polymers in col.3, L 5-42. Instant claims recite wherein the acrylate copolymer comprises from about 38% to about 48% butyl acrylate, from about 39% to about 49% methyl methacrylate, and from about 8% to about 18% methacrylic acid, by weight of the copolymer. Seib fails to teach the exact percentages of the claimed polymers, particularly with respect to butyl acrylate. Seib teaches 45-80% methyl methacrylate and 10-25% methacrylic acid, which overlap with instant percentage of methyl methacrylate and acrylic acid respectively. Seib teaches lower amounts of butyl acrylate i.e., 10-30% whereas instant claim recites 38% to 48%. Further, Seib does discuss prior art copolymers with equal amounts of methacrylic acid ester and methyl methacrylate (col. 1, L 55-62, German published application DAS 2,161,909). Seib also states that while prior art copolymers with higher than 40% of

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methyl methacrylate and methacrylic acid esters were thought to be alcohol-insoluble and not good for film forming properties, it was discovered that such high amounts can still yield alcohol solubility and also excellent film forming properties. According to Seib the polymers are not completely neutralized and low degree of neutralization is advantageous for less tackiness of hair (col. 5, L 15-20). Therefore, a skilled artisan would be able to optimize the amounts of individual amounts of the polymers, particularly butyl acrylate, in the copolymers of Seib with an expectation to obtain the desired solubility in alcohol and excellent film forming property. With respect to the limitations of suncare and skin care composition of claims 8 and 10, the compositions of Seib are taught for hair, however, the claims do not recite any other components other than the polymer that is also taught by Seib and therefore the composition of Seib also meets the claimed suncare and skin care limitations, which represent future intended use. Additionally, a hair care composition can simultaneously function as a sun care composition because claim 8 recites same components of the composition and yet for sun care and eye lashes or eyebrows.

While Seib teaches application of the polymer in hair care, Seib does not specifically recite an emulsion. Instant claim 1 is now limited to an emulsion.

Kubik teaches a water resistant sunscreen composition comprising an oil-base, at least water-insoluble ultraviolet light absorbing materials which is soluble in the oil base, and a water insoluble acrylate polymer having a solubility parameter of 6 to 10 in weak hydrogen bonding solvents. The acrylate polymer serves to bind the UV light absorber to the skin and render it resistant to removal by water. Kubik teaches that the

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acrylate polymers are film forming and act as emulsifying components (col. 2, l 37-47).

Kubik teaches adding water to the polymer containing compositions to prepare emulsions. In order to be useful as emulsifiers, Kubik teaches that the polymer is made of acrylic acid monomers and alkyl ester monomers of acrylic acid (col. 3, L 20-col. 4, L 63). According to Kubik the soluble polymers include alkyl esters of 6 to 18 carbon atoms and exclude lower alkyl esters, implying that the lower alkyl esters impart insoluble characteristics to the composition; and the presence of carboxylic acids imparts removability of the composition with soap and water. Kubik teaches addition of polymer to the oil phase (col. 4, L 65-67). Kubik also teaches that the polymers may be prepared by any of the standard bulk, solution or emulsion polymerization, with latter two being preferred (col. 4, L 29-41). The example compositions of Kubik also contain additional surfactants. While Kubik teaches polymers made of various monomer components (col. 13-14), the reference fails to explicitly teach the acrylate polymer of claimed monomer distribution. However, it would have been obvious for one of an ordinary skill in the art at the time of the instant invention was made to employ the acrylate polymers of Seib as emulsifiers in preparing emulsion compositions and also impart effective film forming and thus sunscreen effect because Kubik teaches that the acrylate polymers made from monomers of acrylic acid and its alkyl esters are effective film formers and also act as emulsifiers. Kubik further suggests increasing the acid monomer content to increased removal with soap and water and decreasing lower acrylate contents for increased solubility. Accordingly, a skilled artisan would have been able to prepare the acrylate polymers of Seib by optimizing the percentages of

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individual monomers such as alkyl acrylate, acrylic acid etc., depending on the solubility, dispersibility desired and also the desire to prepare an emulsion. In addition, a skilled artisan would have prepared acrylate film forming polymers of Seib by employing any of the known methods such as standard bulk, solution or emulsion polymerization, with the latter being preferred because a skilled artisan would have understood that according to Kubik the film forming properties and emulsifying properties are unaffected by the method of preparation.

5. Claims 1, 2, 8-10 and 27-29 are rejected under 35 U.S.C. 103(a) as being unpatentable over US 6221389 to Cannell et al in view of US 4085264 to Seib et al (Seib) and US 4,172,122 to Kubik et al (Kubik).

6. Cannell teaches a hair care composition comprising an aqueous carrier and water insoluble materials (abstract, col. 3, L 25+). The composition is useful for hair, skin or eyelashes etc. For the water insoluble polymers, Cannell teaches that the polymers are unneutralized or partially neutralized (col. 7, Lines 33-40) and suggests specific polymers such as Luvimer 36D (col. 8, L 33-35), more particularly made of the monomers recited in claim 1. Cannell shows good hair curling and fixing properties with unneutralized polymers as well as partially neutralized polymer. Example 22 of Cannell is directed to a mascara composition, the preparation of which employs reads on an emulsion. Cannell is silent with respect to the claimed percentages of the individual monomers of the polymer. For the claimed anionic surfactant, Cannell teaches

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compositions with the above polymers in the form of shampoos, wherein the shampoo contains claimed anionic surfactant (example in col. 16 through col. 17).

7. Seib teaches the claimed copolymers, as described in the previous paragraph, for hair care composition as a film forming polymer. It would have been obvious for one of an ordinary skill in the art at the time of the instant invention was made to include polymers such as those described by Seib in the composition of Cannell because Seib teaches acrylic and acrylic acid esters copolymers similar to Cannell, for their excellent film forming and hair combing properties and Cannell also teaches the polymers for their hair styling, fixing or other non-styling effects. With respect to the exact percentages of butyl acrylate in the copolymer of Seib, applicants have not provided any unexpected advantages with the specific percentage of butyl acrylate claimed.

While Seib teaches application of the polymer in hair care, Seib does not specifically recite an emulsion. Instant claim 1 is now limited to an emulsion.

Kubik teaches a water resistant sunscreen composition comprising an oil-base, at least water-insoluble ultraviolet light absorbing materials which is soluble in the oil base, and a water insoluble acrylate polymer having a solubility parameter of 6 to 10 in weak hydrogen bonding solvents. The acrylate polymer serves to bind the UV light absorber to the skin and render it resistant to removal by water. Kubik teaches that the acrylate polymers are film forming and act as emulsifying components (col. 2, l 37-47). Kubik teaches adding water to the polymer containing compositions to prepare emulsions. In order to be useful as emulsifiers, Kubik teaches that the polymer is made of acrylic acid monomers and alkyl ester monomers of acrylic acid (col. 3, l 20-col. 4, l

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63). According to Kubik the soluble polymers include alkyl esters of 6 to 18 carbon atoms and exclude lower alkyl esters, implying that the lower alkyl esters impart insoluble characteristics to the composition; and the presence of carboxylic acids imparts removability of the composition with soap and water. Kubik teaches addition of polymer to the oil phase (col. 4, L 65-67). Kubik also teaches that the polymers may be prepared by any of the standard bulk, solution or emulsion polymerization, with latter two being preferred (col. 4, L 29-41). While Kubik teaches polymers made of various monomer components (col. 13-14), the reference fails to explicitly teach the acrylate polymer of claimed monomer distribution. However, it would have been obvious for one of an ordinary skill in the art at the time of the instant invention was made to employ the acrylate polymers of Seib in the composition of Cannell, as emulsifiers in preparing emulsion compositions and also impart effective film forming and thus sunscreen effect because Kubik teaches that the acrylate polymers made from monomers of acrylic acid and its alkyl esters are effective film formers and also act as emulsifiers. Kubik further suggests increasing the acid monomer content to increased removal with soap and water and decreasing lower acrylate contents for increased solubility. Accordingly, a skilled artisan would have been able to prepare the acrylate polymers of Seib by optimizing the percentages of individual monomers such as alkyl acrylate, acrylic acid etc., depending on the solubility, dispersibility desired and also the desire to prepare an emulsion. In addition, a skilled artisan would have prepared acrylate film forming polymers of Seib by employing any of the known methods such as standard bulk, solution or emulsion polymerization, with the latter being preferred because a skilled

artisan would have understood that according to Kubik the fill forming properties and emulsifying properties are unaffected by the method of preparation.

Response to Arguments

8. Applicant's arguments filed 11-16-09 have been fully considered. Applicants argue that instant invention, as recited in independent claim 1, as amended, is directed to a personal care composition comprising a water-proofing effective amount of a water dispersible acrylate copolymer emulsion. It is argued that a copolymer emulsion is obtained by emulsion polymerization and an emulsion would not be obtained by synthesizing the copolymer in a non-aqueous environment, or by any other type of polymerization, e.g. solvent, bulk, etc. It is argued that an emulsion is particularly important because it provides a water proofing effect to the personal care composition. It is further argued that limiting the amount of hydrophobic monomers in the copolymer emulsion to having essentially no hydrophobic monomers having an alkyl group of greater than or equal to C8 provides a highly water proof polymer film when the emulsion is dried, without a heavy greasy feel that is highly undesirable.

9. Applicants argue that after polymerization and vaporization of solvents of Seib, a polymer melt is obtained (Seib at col. 2, lines 38-46). It is argued that Seib gives no hint to obtaining a polymer emulsion. Contrary to the disclosure of Seib, Applicants' argue that their invention includes a water dispersible polymerized acrylate copolymer emulsion. It is argued that one of ordinary skill in the art would understand that a copolymer emulsion is distinguishable from what might be obtained from solution polymerization or mass (or bulk) polymerization. Consequently, because Seib neither

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discloses nor suggests an acrylate copolymer emulsion, it argued that claim 1 is patentable over Seib.

10. Applicants' arguments have been considered and in light of the arguments and the present amendment accordingly, the rejections of claims over Seib alone have been withdrawn. However, a new rejection over Seib in view of Kubik et al has been made, where the latter reference addresses the methods of polymerization of film forming acrylate terpolymers and preparation of emulsions containing the same. Further, applicants have not shown any unexpected advantage in preparing the polymer by emulsion polymerization as compared to various methods recognized by art. On the other hand, Kubik teaches preparing emulsifier film forming acrylate polymers by different methods.

11. Applicants argue that Cannell is silent, with respect to the feature of a water dispersible acrylate copolymer emulsion and instant claims require a water-proofing. It is argued that Cannell does not recognize water proofing and only requires delivery of water insoluble actives. It is argued that Seib does not make up for the deficiency of Cannell. In response to applicant's arguments against the references individually, one cannot show nonobviousness by attacking references individually where the rejections are based on combinations of references. See *In re Keller*, 642 F.2d 413, 208 USPQ 871 (CCPA 1981); *In re Merck & Co.*, 800 F.2d 1091, 231 USPQ 375 (Fed. Cir. 1986). The office action clearly states that Cannell does not teach the claimed polymers and their water proofing or film forming effect. However, Seib has been cited for the same. With respect to the polymer emulsion, it is the position of the examiner that the

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instant polymer is not an emulsion and instead the polymer is added to a composition to render an emulsion. Further, the newly added reference of Kubik teaches that acrylate polymers are effective emulsifiers and provide water proofing on the skin.

Conclusion

12. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Lakshmi S. Channavajjala whose telephone number is 571-272-0591. The examiner can normally be reached on 9.00 AM -5.30 PM.

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Sharmila G. Landau can be reached on 571-272-0614. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Lakshmi S Channavajjala/

Primary Examiner, Art Unit 1611

February 10, 2010